a secondary source of DC;

a power controller capable of inputting [multiple] power simultaneously from said primary sources, said alternative primary source of DC making a shared contribution of power selected by said power controller, [including at least one primary source of AC or DC electrical power of singular or variable voltage and at least one secondary power connection for processing an external DC electrical power in service] and delivering a constant voltage DC to at least one DC compatible load at [its] an output of said power sharing system[, such as a lighting fixture requiring DC electrical power, said system comprising:] ;

said power controller [converting] having means to convert inputted [said primary] electrical power into a defined DC-regulated voltage [used] to provide and manage power to said [end-use service power] DC compatible load; and

[said power controller having said at least one secondary power connection for processing at least one alternative DC power source in readiness for service to said at least one DC compatible load; and,

said power controller having circuitry at said secondary power connection for combining alternative said DC power source with said voltage regulated DC voltage in service to said at least one DC compatible load.]

said secondary source of DC being a battery to supply

power in the event of a failure in a primary source of power, said power controller maintaining said battery in a fully charged condition.

50. (Amended) The [universal] power system of Claim 49 wherein said [at least one secondary power connection comprises at least two secondary power connections including one first secondary power connection and at least one second secondary power connection] DC compatible load is a lighting system.

51. (Amended) The [universal] power system of Claim 49 wherein said alternative primary source of DC [power source] is [at least one external electrical] a storage medium[, said at least one secondary connection for said electrical storage medium having circuitry for managing the state of charge for said electrical storage medium].

52. (Amended) The [universal] power system of Claim 49 wherein said alternative primary source of DC [power source] is [at least one supplemental source of power capable of providing DC electricity] photo voltaic.

53. (Amended) The [universal] power system of Claim [50] 49 wherein said [at least one] alternative primary source of DC [power source] is [an external electrical storage medium, said at least one secondary connection for

said electrical storage medium having circuitry for managing the state of charge for said electrical storage medium] a cogenerator.

54. (Amended) The [universal] power system of Claim [50] 49 wherein said [second secondary] alternative primary source of DC [power source] is [at least one supplemental source of power capable of providing DC electricity] a wind energy conversion system.

Cancel claim 55.

56. (Amended) The [universal] power system as in Claim [50] 49 [further comprising] in which said power controller [having] has circuitry for combining power from said [at least one first secondary power connection] alternative primary source of DC and said [at least one second secondary power connection in service to said at least one DC compatible load,] battery in the absence of power from said primary [electrical power] source of AC.

Cancel claims 89 and 90 and substitute the following:

115. The method of sharing power comprising the steps of:

inputting to a power controller electrical power from a primary source of AC, an alternative primary source of DC, and a secondary source of DC;

said power controller converting the inputted electrical power from said primary source of AC into a constant DC voltage, with said electrical power from said alternative primary source of DC making a shared contribution of power selected by said power controller;

said secondary source of DC backing up the delivery of electric power in the event of a failure of electrical power from said primary source of AC; and

delivering said constant DC voltage to lighting ballasts.

116. The method of claim 115 in which said alternative primary source of DC is one of a photovoltaic, a cogenerator, and a wind energy conversion system.

REMARKS

The undersigned acknowledges the courteous discussion held with the Examiner on Aug. 22, 2001.

This Amendment is made in response to the Office Action of May 8, 2001, in conjunction with the above noted Continuing Prosecution Application (CPA) of the above identified application, which is a continuation-in-part of application serial no. 08/606,219, filed March 7, 1996, now US patent no. 5,786,642 of July 28, 1998, which was a continuation-in-part of application serial no. 08/328,574, filed October 24, 1994, now US patent no. 5,500,561, which is was a continuation of application serial no.08/129,575 filed September 29, 1993, now abandoned, which was a continuation of application serial no. 07/944,796, filed September 15, 1992, now abandoned, which was a continuation of application serial no. 07/638,637, filed January 8, 1991, now abandoned. These applications are incorporated by reference herein.

In view of the amendments herein to the claims and the following representations, reconsideration of the application in its present form is respectfully requested.

All of the claims were rejected as being indefinite. The claims have been carefully reviewed and corrected in all the areas identified by the Examiner.

All of the claims were also rejected as being anticipated by each of Mototani et al, Morita, Epstein, Smith, Farhey, Durand et al or Hutchinson.

These references are described as follows:

Hutchinson '452:

This is a system for "hot swapping" a redundant power supply for a failing supply without "missing a beat" in support of a vital computer system. The two power supplies are identical and "presumably" powered by the same (or perhaps two different) DC input source/s. The patent lacks an AC power source.

Morita '311:

This is a power supply fed by AC having a battery back-up to maintain a volatile memory bank in the event of both POWER-ON or POWER-OFF failures of the AC power source. It also has sophisticated controls to minimize the number of "deep discharge" events to extend battery life while maintaining system integrity. Battery is internal. There is an "auxiliary power source 9" but it is like "main power source 8"; both are AC/DC power converters fed by the same AC input. Morita does NOT have an external DC power source or connection, nor does it appear to have any power sharing as in the present invention.

Fahey '872:

This is an AC powered DC power supply with internal back-up battery and charging circuitry. There is no sharing between AC and DC power sources.

Smith '788

This is a UPS power supply with two back-up batteries. However, the load is always connected to one of the batteries while the other is being charged. By this charge/discharge technique and using diode isolation, the battery switching does not disturb the load and the ampere-hour rating of the batteries is maintained. There is no power sharing between AC and DC power sources.

Mototani '205

This is a large computer power supply with battery back-up. (Although not explicitly mentioned, this is in an industrial style electrical cabinet with commercial cosmetic covers. Therefore, it is hard to decide what is internal or external... the batteries could be in another cabinet.) The novel feature is a pair of circuit-breaker connected switches 5 and 9 which control the connection of the back-up battery to supply back-up or while being charged. The idea is to avoid backing up the system during periods when it is actually manually shut off (as opposed to when CB is tripped due to an overload). This would avoid unnecessary deep

discharge cycles of the battery. Different usage modes and circuit breaker states are defined.

Durand '427:

This invention deals with a solar energy power system with no attachment to other power sources except for batteries charged by the PV solar collectors. The invention consists of a control system to run a load with a high in-rush current characteristic such as a DC motor for a well pump. A variety of current limiting techniques are detailed. There is no power sharing between AC and DC power sources.

Epstein '538

A general purpose UPS is described with both internal 50 and external 102 back-up batteries. An internal charger and microprocessor control operation. AC primary power is converted to DC. A DC bus 40 is maintained at a nominal DC voltage while Voltage regulator 62, switching power supply 68 and DC to AC converter 70 are supplied by this bus 40 and feed separate loads which are DC or AC. There does not appear to be any power sharing between AC and DC power sources.

Nichol '539

This is a single back-up power module which backs up a number of individual power modules of a main-frame computer. The primary input is AC and the outputs are DC such as +5V,

+12V and -12V. Logic and switching is defined to control the appropriate back-up in case of a power supply failure. This is not a UPS and no batteries are shown in the drawings. There also seems to be no substitute in case of loss of primary AC.

In view of the art cited, claim 49 has been extensively revised to highlight the distinguishing features of the present invention. The claim now calls for the three sources of electrical power, the primary source of AC, the alternative primary source of DC, and the secondary source of DC which is defined as a backup in the event of a failure of a primary source of power. The claim recites the sharing arrangement of the two primary sources of power, with the power controller selecting the amount of sharing. It is not believed that any of the references of record, including those described above, teach or suggest this important feature of the present invention. Sharing of the AC and DC power is described in pages 6-7 of the specification and Fig. 10 of the drawings, as well as in other places.

Claims 55, 89 and 90 have been canceled and replaced with new method claims 115 and 116. The remaining depending claims have all been amended to recite additional details of the invention including that of identifying the alternative primary source of DC being either photo voltaic, cogenerator, or wind mill.

Method claims 115 and 116 recite a method of method of power sharing involving the steps of sharing power between

AC and DC power sources to produce a constant DC voltage output. It is urged that such a method is not taught or suggested by the art of record, either singly or in any combination.

Independent Claim 49 describes a device that forms a power interface that can accommodate the best of both the AC and DC power standards.

Therefore, in light of the foregoing amendment to the claims and the foregoing remarks, the rejection of the pending Claims is requested to be withdrawn.

Applicant submits that the application is in condition for allowance, which allowance is earnestly solicited.

Applicant also advises that a currently pending patent application serial no. 09/363,090 filed July 28, 1999 entitled "Balanced Modular Power Management System and Method" contains subject matter similar to and related to the subject matter of the instant application.

A clean version of the claims as amended follows these remarks.

A favorable action is solicited.

Respectfully submitted,

Dated: ~~August~~ September 7, 2001

Alfred M. Walker
Attorney for Applicant
Reg. No. 29,983

225 Old Country Road
Melville, New York 11747
(631) 361-8737